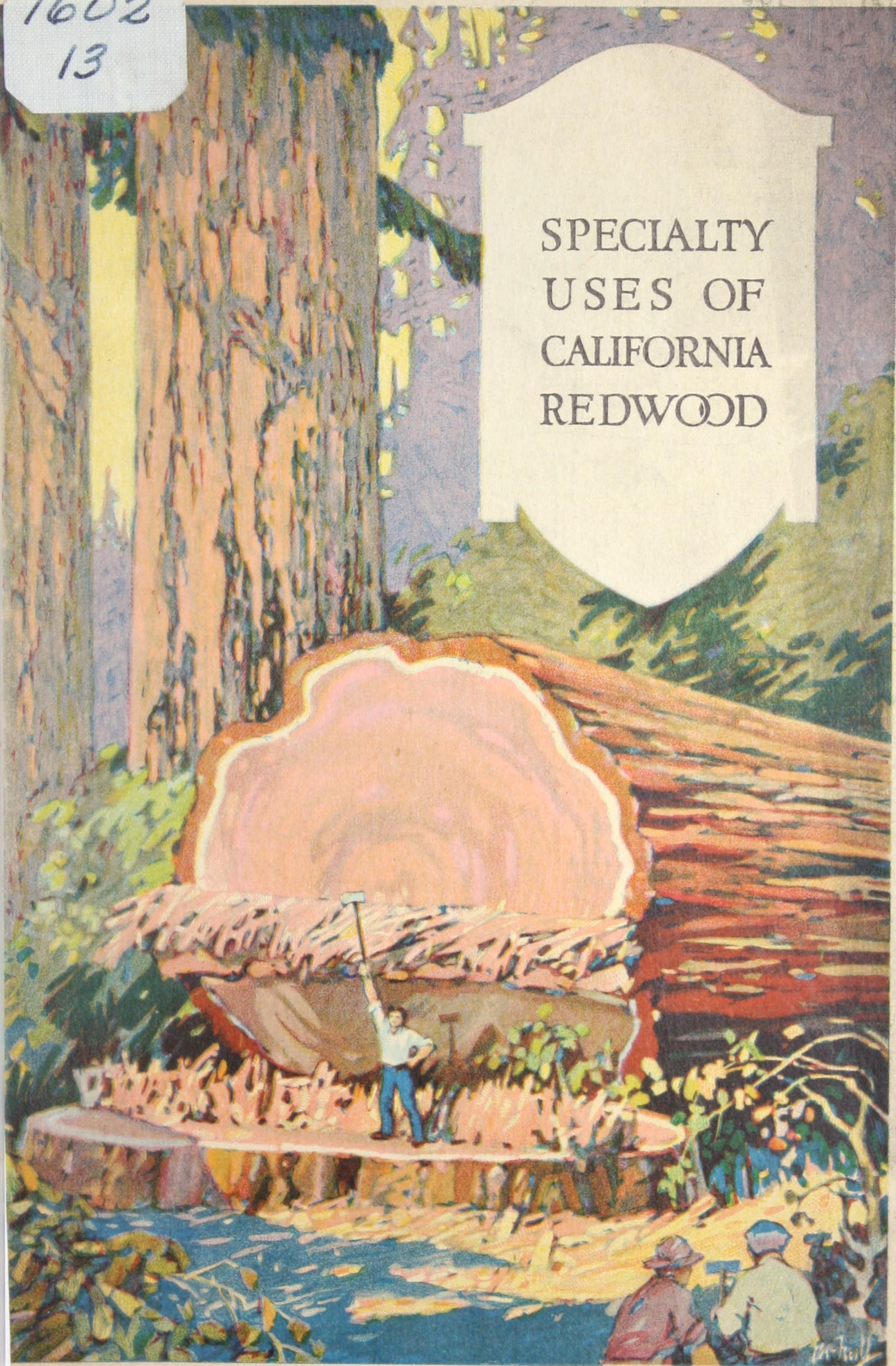


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SPECIALTY
USES OF
CALIFORNIA
REDWOOD



SPECIALTY USES
OF
CALIFORNIA
REDWOOD



(1917)

CALIFORNIA REDWOOD ASSOCIATION
SAN FRANCISCO

*Copyright 1917
by
California Redwood Association*



Insulating boxes of 1-inch surfaced and matched Redwood built around brine pipe in engine room of National Ice and Cold Storage Co., San Francisco, 15 years ago. Temperature of pipes 5° above zero. Temperature in engine room 80°. Frost on inside of lower box is gradually forcing the box out of shape. In spite of great difference in temperatures on opposite sides of this 1-inch Redwood there is no shrink, check or decay. Insulation of Redwood is shown by absence of frost on outside of box

Specialty Uses of California Redwood

Insulation—Ice Houses

A large manufacturer of silos in the East, one of the pioneer concerns in the use of Redwood for silos, makes the statement that 2 inches of Redwood is equivalent to 30 inches of concrete in insulating power. This manufacturer has studied Redwood thoroughly from this angle for the reason that the success of a silo depends upon the non-conductivity of

the silo wall—as dissipation of the natural heat of the silage through the silo wall increases the per cent of waste silage.

Redwood in growth structure is porous, and, when studied under a microscope, looks very similar to a comb of honey between the dark annular rings. Every one of these millions of cells in the growing tree is full of sap, but when the tree is cut into lumber the lumber must be “sea-

WILL NOT SHRINK, SWELL OR WARP

101 60891-148 CTE

C A L I F O R N I A R E D W O O D

soned" or dried, before it goes into commercial use. This "seasoning" process consists merely of evaporating the natural moisture out of these cells. Each cell, therefore, becomes a dead air space.

The cellular make-up of Redwood is uniform both in the thickness of the cell wall as well as the size of the cell. It is plainly evident, therefore, that heat applied to one side of a piece of Redwood, to travel through the Redwood must pass through a thin cell wall, then a dead air space, then another cell wall and then another dead air space, and so on. Heat passing through this combination rapidly dissipates.

Prof. L. J. Towne, of Columbia University, gives the relative power of conduction as 1 to 20 between wood and stone, cement or clay products. This means that stone and cement are 20 times a better medium for the conduction of heat or cold than is wood. The millions of dead air cells between the annular rings of Redwood are what give Redwood its insulating power.

Manufacturing plants on the Pacific Coast use Redwood as a substitute for cork board for insulating.

There are some splendid examples of Redwood's insulating power, as well as its remarkable longevity under the most severe service, in the old plant of the National Ice and Cold Storage Company, at Kentucky and Division streets, San Francisco. This plant was built in 1902—15 years ago—and Redwood was used throughout. The system of brine piping is encased in Redwood boxes made of one-inch matched and surfaced Redwood. Nearly all of these insulation boxes are still in use. The temperature in the brine pipes is 6 degrees above zero, and they have

gradually built up around the pipe, inside of the box, an incrustation of frost that completely fills the box. In spite of the fact that the temperature of the inside of these insulation boxes is 6 degrees above zero, and the temperature in the engine room of the plant is 80 degrees, there is no shrink, warp, swell, twist or check in these boxes, nor is there any gathering of frost on the outside of the box which would indicate free conductivity through the wood.

Not only this plant, but most of the ice houses on the Pacific Coast use Redwood as lining for cold storage and ice rooms. In the plant above referred to there are ice storage rooms that have been in continuous use for 15 years, and where Redwood has been incased with frost and ice for that period, and in spite of this severe service these rooms are thoroughly air-tight—the joints of the wood are tight.

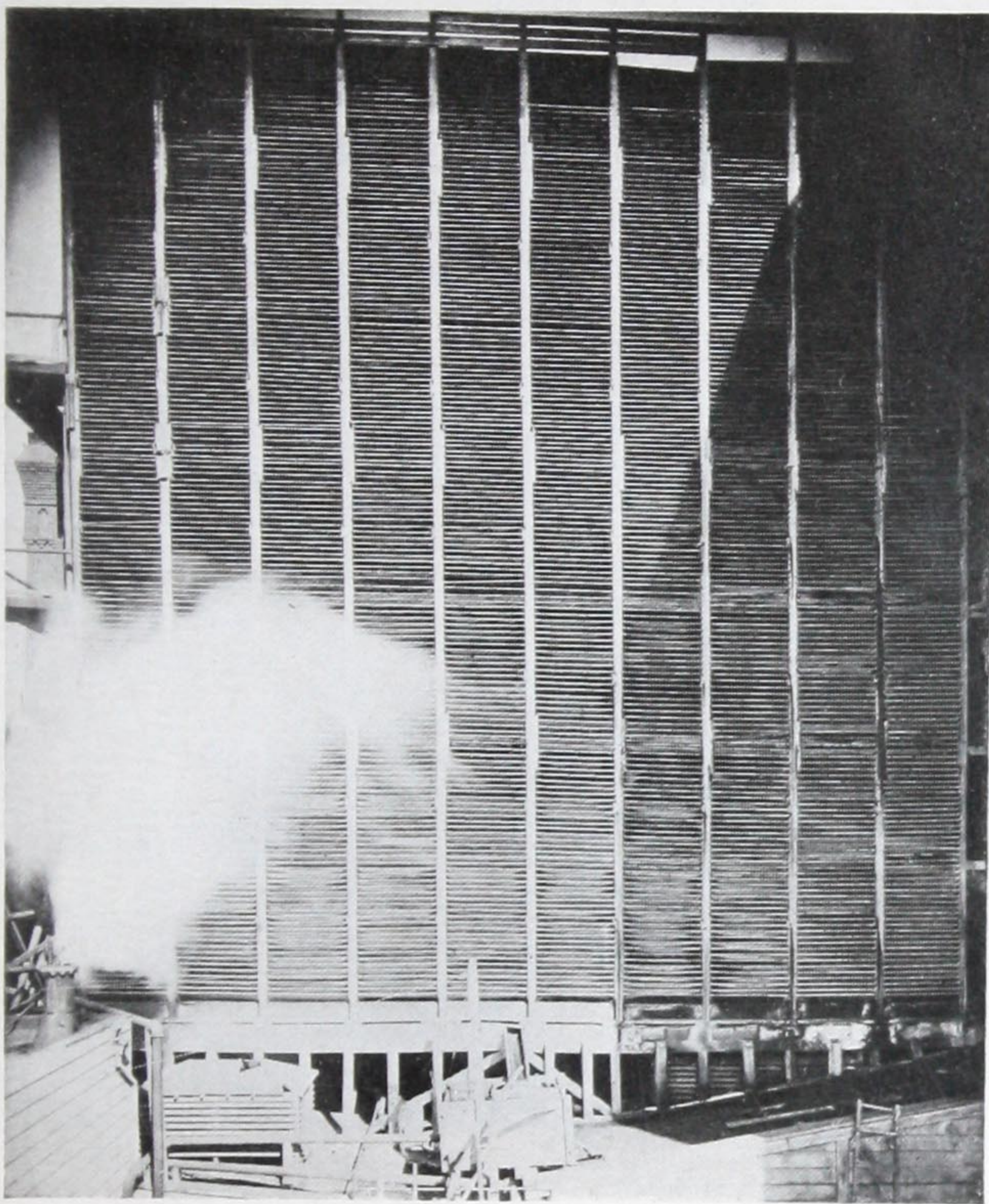
Roofs

Redwood possesses a number of qualities that make it highly preferable for roofs, and particularly in factories where there is humidity and condensation to contend with. It has been found particularly serviceable in connection with the so-called "saw tooth" type of roof.

In many kinds of business such as cotton mills, paper mills, etc., where there is humidity or rising steam, there is trouble with condensation that drops back onto the products handled and creates a manufacturing loss. This is due to the fact that the roofing materials do not properly insulate the sharp differences in temperature between the exterior and interior, and particularly where there is severe cold weather.

R E S I S T S F I R E A N D R O T

C A L I F O R N I A R E D W O O D



Cooling tower made of Redwood frames and lattice at plant of National Ice and Cold Storage Co., San Francisco

Redwood's natural resistance to decay under moisture or humidity gives it a maximum of life, while its inherent resistance to the attack of acids or alkalis, or the fumes of chemicals makes it preferable in cases where such conditions prevail.

It is light in weight and sufficiently strong under proper design.

Redwood also possesses the necessary attribute of holding its shape—when wet it does not swell and, when again dried, does not shrink perceptibly. Redwood is not sensitive to severe changes of temperature or atmospheric conditions which set up

counteracting strains in wood. It can be depended upon to hold its shape when one side is subjected to freezing and the other to heat or humidity.

Redwood is a thoroughly satisfactory surface to paint. Its porosity affords a firm grip for the paint and makes it possible to get a thorough coverage. As Redwood, when thoroughly dry, is subject to a minimum of movement in the wood itself under varying conditions of heat or moisture, there is a minimum tendency to check the paint film from such cause.

WILL NOT SHRINK, SWELL OR WARP

It is not necessary to subject Redwood to artificial preservatives to give it durability—it possesses a natural durability that resists rot both in contact with water, moisture or humidity, or subjected to conditions of heat or dryness, or severe alternating dry and moist conditions. Redwood can be denied ventilation by sealing in metal, and under conditions of this kind it has a high resistance to dry rot; this same resistance to dry rot is present even if the wood is not denied air.

In Redwood, as in other woods, the heart stock will last longer than the sap.

There is a sharp distinction between heart and sap in Redwood, as the natural color of the heartwood is a soft reddish-brown, while the sapwood is white. Redwood sapwood, however, is as durable as any other soft wood when painted.

Greenhouses

Nurserymen on the Pacific Coast have for years recognized the superior service of Redwood for greenhouse purposes, and a number of builders of greenhouses and greenhouse appurtenances in the East are



Ice storage room of National Ice and Cold Storage Co., San Francisco. In spite of 15 years of severe service, the room is air tight and the Redwood lining and timbers are free from decay

also enthusiastic advocates of Redwood.

Redwood's remarkable durability in contact with moist soil, and the fact that it is unaffected by sudden changes in temperature or atmospheric conditions, make it highly preferable for sash bars and muntins. Glass laid on Redwood greenhouse moulding does not become loose, rattle, and shatter because of decay in the moulding.

Redwood makes a "stay-tight" joint, and therefore a leak-proof glass roof. Redwood does not swell perceptibly when wet, nor shrink and twist when again dried.

R E S I S T S F I R E A N D R O T

C A L I F O R N I A R E D W O O D



Because of Redwood's resistance to rot when in contact with moist earth it was used for the boxes with which were built up the famous Mesembryanthemum hedges at the Panama-Pacific International Exposition, San Francisco, 1915

It is the most lasting and durable wood that can be used for benches, propagating boxes, lattice, "cold forms," "hot beds," etc.

Redwood does not have to be treated to give it durability in contact with the ground; neither does it swell nor twist out of shape because the inside of the propagating box is in contact with wet ground and the exterior is dry.

It resists attack by insects, and does not develop fungus growths.

The use of Redwood about the greenhouse insures a maximum service, as well as being the easiest wood to work and the most satisfactory material to handle.

Redwood in the greenhouse cuts the repair bill to a minimum.

The following letter from the vice-president of the King Construction Company, North Tonawanda, N. Y., one of the largest designers and builders of greenhouses in the country, shows how highly they regard Redwood for greenhouse purposes:

North Tonawanda, N. Y.,
Feb. 19, 1917.

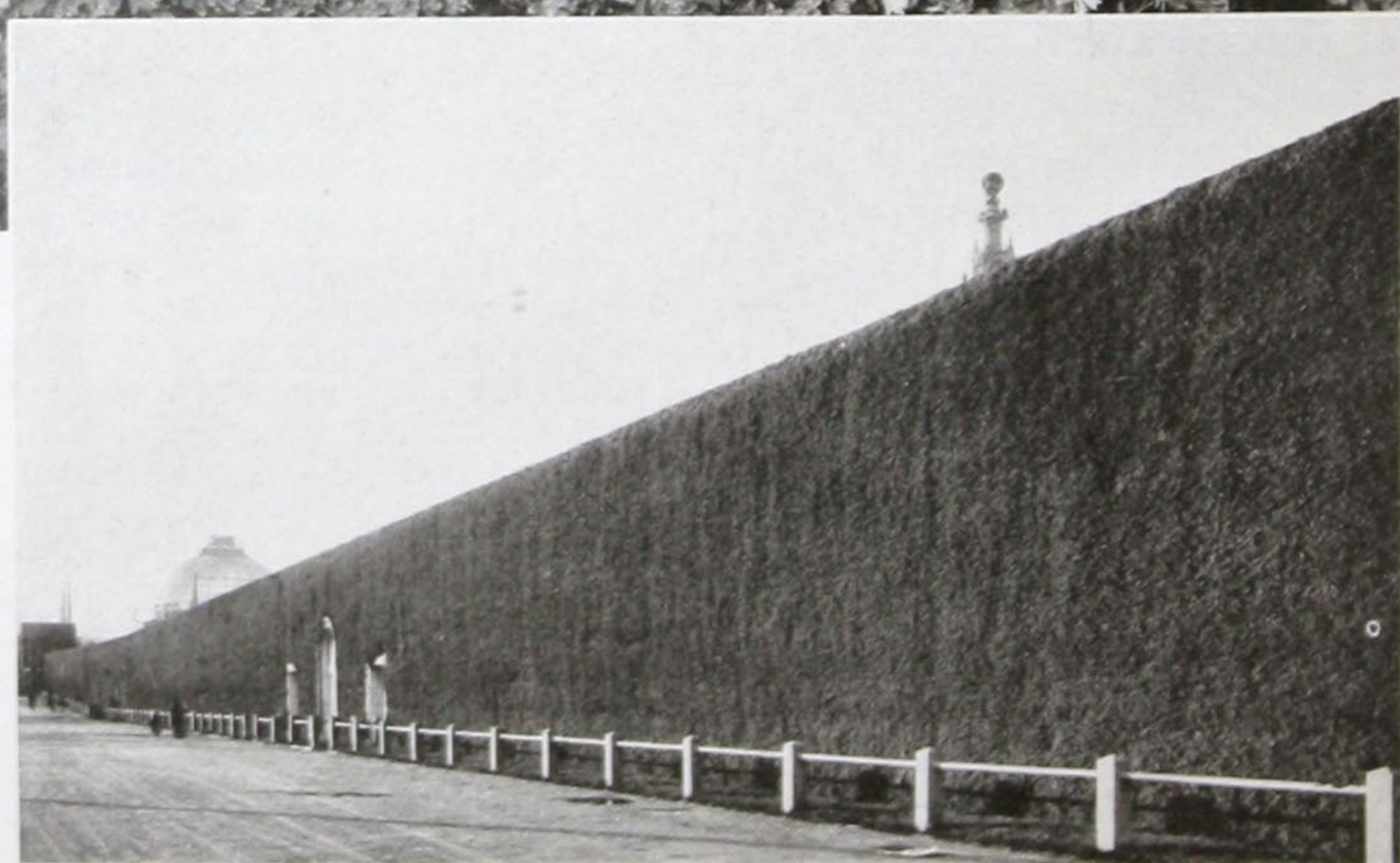
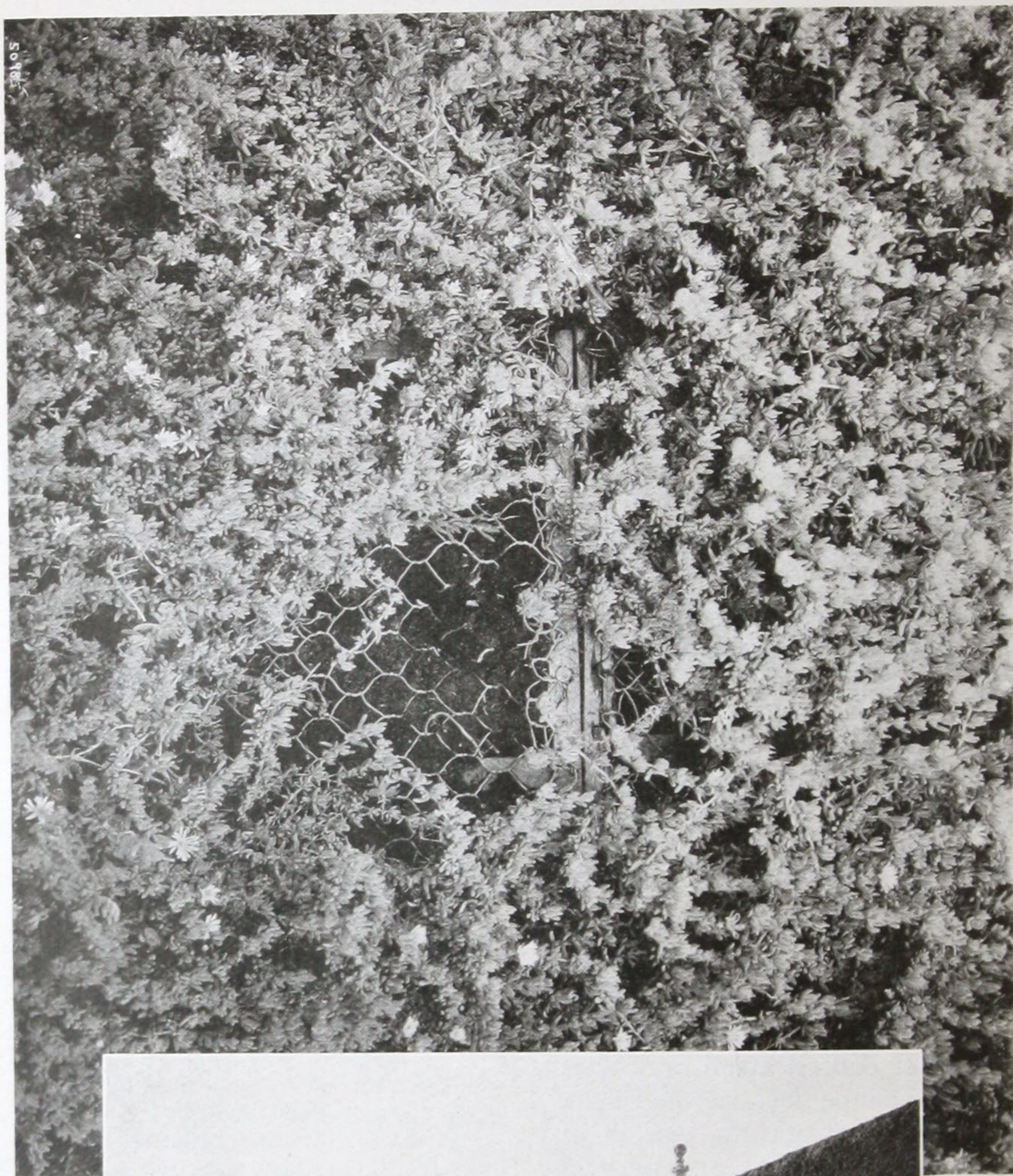
CALIFORNIA REDWOOD ASSN.,
San Francisco, California.

Gentlemen: We note by the little circular which you enclosed with your letter of February 13th that you show a couple of greenhouses which we built at Newton Falls, Ohio, these houses having been built throughout by our company of California Redwood.

Perhaps you would be interested in knowing why we use Redwood for greenhouse work.

We have tried various kinds of woods that we thought might be suitable for greenhouse work for the past 20 years, and we have found Redwood

WILL NOT SHRINK, SWELL OR WARP



Mesembryanthemum hedge at Panama-Pacific International Exposition, San Francisco, 1915. *Mesembryanthemum* was grown in boxes of Redwood (chosen for its rot-resisting qualities), and the boxes were then stacked to the required height and shape

C A L I F O R N I A R E D W O O D



Redwood lattice roof over the Botanical Gardens at the Panama-California Exposition, San Diego, 1915-1916. Redwood was used in this permanent building because of its ability to withstand severe service of this type

to be the most durable and serviceable of any of them.

1. That it is less subject to decay in the severe conditions of heat and moisture existing in a greenhouse.
2. That it is less liable to warp and twist than other woods.
3. That it does not shrink or swell.
4. That it runs more uniform straight grain than the next best wood, which we consider to be —
5. That it takes paint much better and the grain does not raise.
6. That it is much easier to detect and eliminate the sap on account of the heart wood being red and the sap wood white, whereas in other woods this difference in color is not noticeable so much.
7. That it has invariably been satisfactory to all our trade.

We would be glad to answer any questions from any of your customers giving further details of our experience.

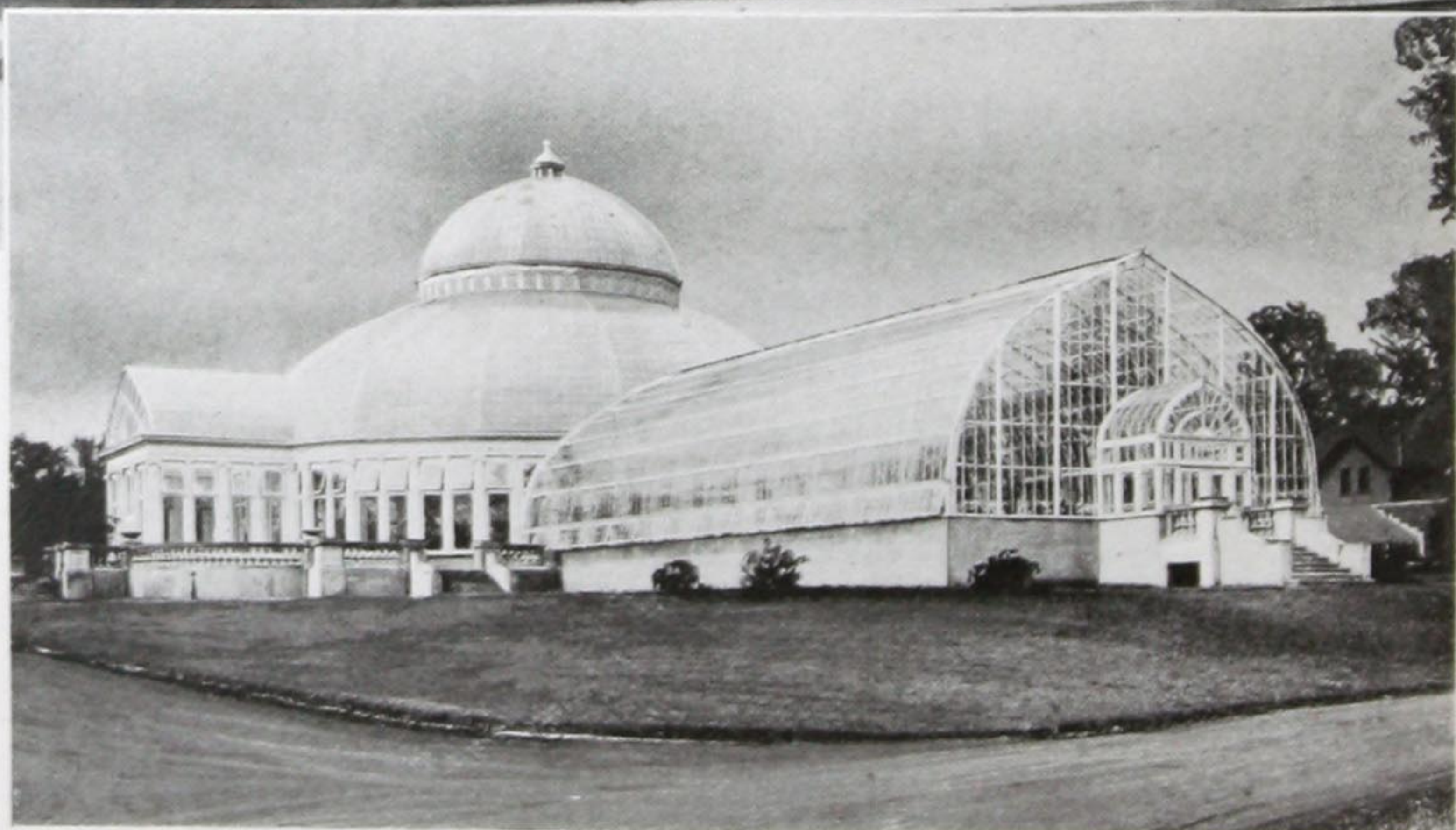
Yours very truly,
(Signed) E. P. LOVEJOY,
Vice-President and Gen. Manager.

Redwood Lath

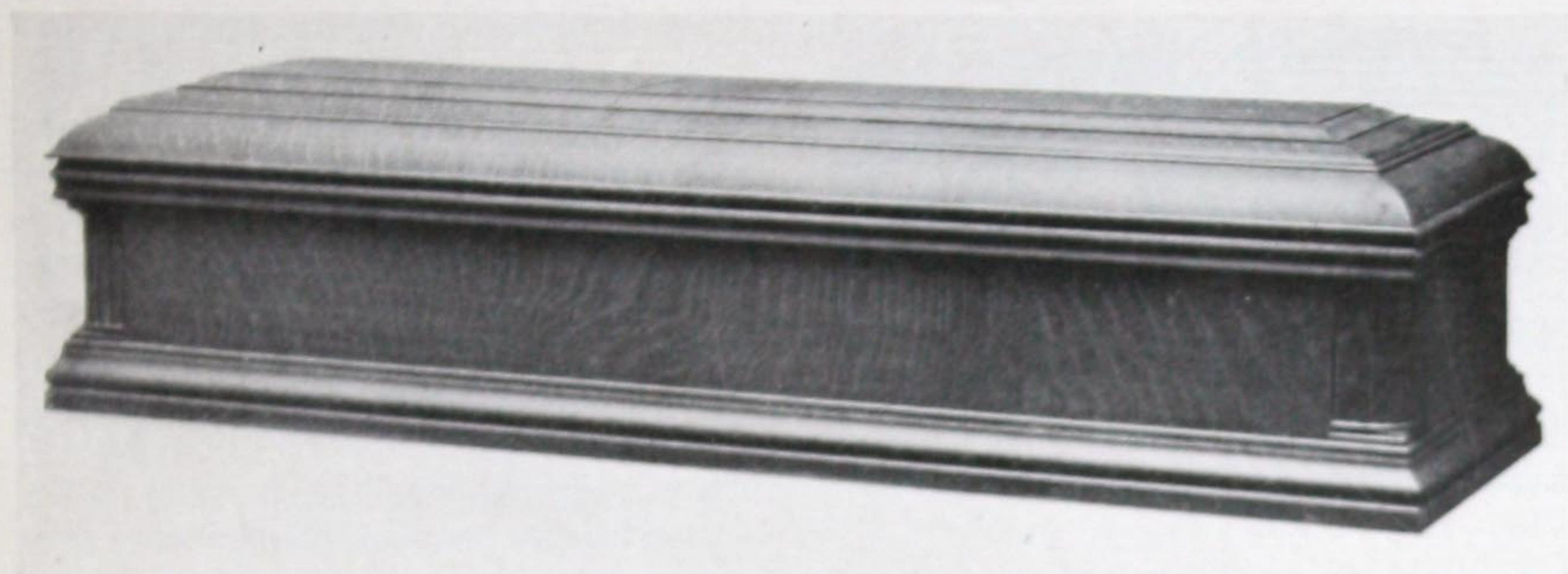
Redwood lath have given most satisfactory service for many years; the fire-retarding property of Redwood giving lath of this material a decided advantage over the ordinary kinds. For best results the rough coat of plaster should be allowed to dry thoroughly before applying the finish coat.

The Eureka High School, erected at Eureka, California, is a recent instance of the use of Redwood lath in a building of the most modern construction.

WILL NOT SHRINK, SWELL OR WARP



Redwood was used for this conservatory at Como Park, St. Paul, Minnesota. Erected by King Construction Company, North Tonawanda, New York



Redwood's long life when in contact with the ground makes it especially desirable for casket shells and coffins

Casket Shells, Coffins, and Burial Boxes

Ninety-eight per cent of the burials in California are in Redwood caskets, coffins or burial boxes.

Redwood is highly preferred for this purpose because of the splendid protection it affords by reason of its wonderful durability in contact with the ground. A Redwood coffin or burial box can be depended upon to remain intact for many years.

Manufacturers of coffins and burial boxes prefer Redwood because it is light and saves freight. It is easy to work and makes a tight joint that does not pull apart, and, in addition, it is a surface that can be stained to any desired effect.

The Redwood casket or coffin retains its shape long after coffins made of other woods have failed and fallen to pieces.

Used by Government

The United States Government contracts for large quantities of Redwood coffins, most of which are sent to the army posts in tropical countries. The army prefers the Redwood

coffin because it affords the highest type of protection to the body. The Redwood coffin is particularly serviceable in tropical countries by reason of the fact that it resists attack by the termite or white ant, which rapidly destroys most other woods.

Just one of many similar letters on file:

WESTERN CASKET COMPANY

320-330 TENTH STREET

Oakland, Cal., Nov. 21, 1916.

CALIFORNIA REDWOOD ASSN.,

San Francisco, California.

Gentlemen: When we first began business, something more than ten years ago, we were using in part some other wood than Redwood, but very soon found that by far the best for our purpose was Redwood. It works up far more smoothly than other woods and therefore when a nice covering is placed over it and the casket trimmed it gives a far better appearance than other wood, because of the fact that it does smooth down under the sander.

Californians know that Redwood lasts under ground almost indefinitely.

This wood is much lighter in weight than other wood and therefore the freight on Redwood caskets is much less, as well as on the outside or shipping boxes made of the same. This makes a considerable saving to the shipper.

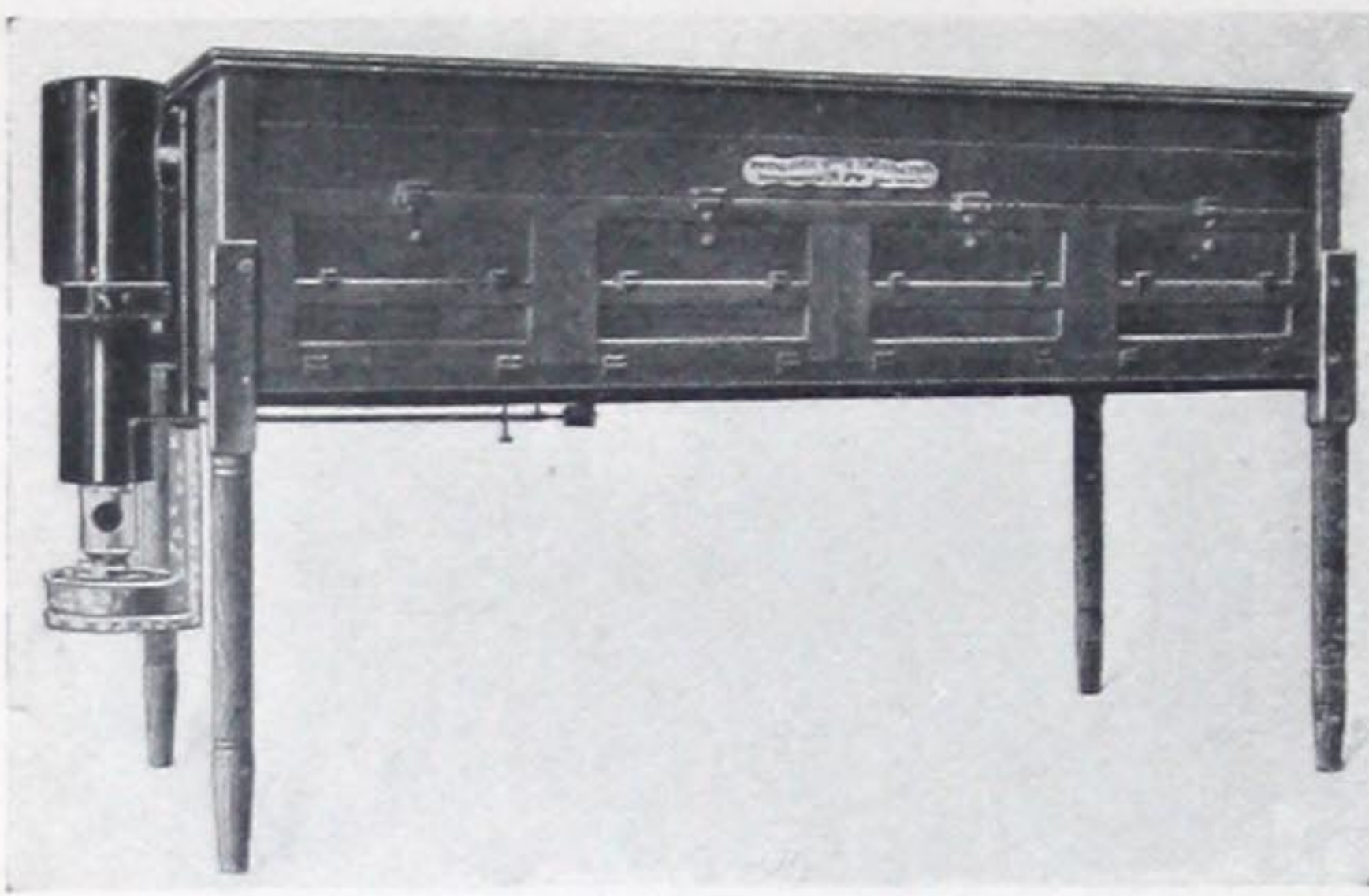
In our opinion, there is no comparison between the Redwood for our purpose and any other wood.

Very truly,

WESTERN CASKET COMPANY,

F. J. Mayhew, President.

WILL NOT SHRINK, SWELL OR WARP



A Redwood incubator.

Brooders and Incubators

Manufacturers using Redwood for incubators and brooders are enthusiastic over its perfect adaptability.

An incubator, because of the difference in temperature between the interior and the exterior, requires a wood that holds a tight joint, is unaffected by differences in temperature, or alternating wet and dry atmospheric conditions.

Tight joints keep out drafts and give a higher working efficiency to the incubator.

Redwood's insulating power, its light weight, the ease in working, its resistance to rot and fire, as well as its splendid surface to take and hold paint, are additional favorable factors.

The following letter from the president of the Petaluma Incubator Company sets forth the experience of one of the largest manufacturers of incubators and brooders in the country:

Petaluma, Cal., Sept. 30, 1916.

EDWIN E. MYERS, Sec. Manager,
California Redwood Association,
San Francisco.

Dear Sir: Before coming to California the writer used pine and other

woods grown in Canada, but on coming to California Redwood was the most convenient to secure, and it proved to be a very happy result, for the Redwood used in these goods never shrinks or swells, and hence when we make good close joints to begin with, it remains so. Incubators made by us nearly forty years ago are still in use and, so far as the joints are concerned, they are as close now as when the machines were first constructed.

In our experience there is no wood which has come within our range that can equal or approach California Redwood for making incubators and brooders, and so thoroughly were we convinced of that, more than thirty-five years ago, that in all the time since we have not used other lumber.

We have found that in shipping our goods to the Philippine Islands, Australia, India, South Africa, South American countries, such as Argentine, Uruguay, Brazil, Peru, and Chile, that the Redwood stands the ravages of the insects, such as the great white ant. These insects, which seem to enjoy making a breakfast of other kinds of wood, will not touch the Redwood.

In addition we have shipped to almost every place on the globe. Our incubators are used in Jerusalem, in Cairo, Egypt, in many of the islands of the Pacific and Atlantic oceans, and in the countries south of us, such as Mexico, Guatemala, Nicaragua, and even in the Canal Zone at the Isthmus. In some of the latter mentioned sections we regard the climatic conditions as trying on any kind of wood. There is no complaint, however, with Redwood.

Respectfully,

PETALUMA INCUBATOR COMPANY,
L. C. Byce, President.

R E S I S T S F I R E A N D R O T

Ice Cream Cabinets

Redwood is extensively used for the manufacture of ice-cream cabinets. It has been found by actual experience to be suited for this service.

Experience is the most satisfactory demonstrator. Read what The C. Nelson Manufacturing Co., of St. Louis, say about their experience with Redwood:

C. NELSON MFG. CO.

St. Louis, U. S. A., Aug. 29, 1916.

CALIFORNIA REDWOOD ASSN.,

San Francisco, California.

Gentlemen: In answer to yours of the 23rd, will state that we found Redwood to be a better non-conductor of heat and cold than any other wood we could get, and, being light, it was less cumbersome to build our cabinets from, as they have to be taken in every fall and put out every spring for service.

We also find that by using wide boards we have no glue joints; constant moisture and sometimes freezing would part these joints.

They also take on a beautiful finish in almost any color desired. The small parts that have to be glued for lids and rings hold better than other wood.

Redwood does not warp if properly seasoned before it is used.

Cabinets we built 15 years ago of Redwood, with sides 25½" wide, all in one piece, come in for repairs in perfect shape, and can be redressed and finished to look almost like new.

We shall probably never use any other wood for the building of Nelson cabinets. . . .

Fifteen years ago we built 10 cabinets and sold them for \$100. This year our sales will amount to something over \$100,000. Fifteen years ago it was a new proposition to the ice-cream world. A great many thought it an unnecessary expense, but have since found it a very necessary ad-

junct. It is growing every year and we never have a complaint from our customers.

Yours very truly,

(Signed) C. NELSON MFG. Co.,
C. Nelson, President.

Boxes and Chests

Redwood is excellent material for a high grade clear box as a container for bulky goods of light weight, such as shirt waists, cereals, wearing apparel, etc.

A number of candy shops on the Pacific Coast are using with great success a small Redwood box as a shipping container for candy.

These boxes are made of clear, dry Redwood, and are labeled as "wood from the 'big trees' of California." This gives the box a sentimental value, and, as the box is neatly made, it usually finds a permanent place in the recipient's home for some other purpose.

A manufacturer of boxes in the east recently arranged for a large amount of Redwood to be used for shirt waist boxes. The Redwood is cut thin, and the completed box is covered with matting glued to the wood. These boxes are to be used to ship shirt waists to tropical countries.

Redwood chests are splendid for storing wearing apparel, valuables, etc. The ease with which the surface can be worked for decorative purposes makes it possible to produce a handsome and extremely durable chest that is a rapid seller. Many Redwood chests are decorated with a sandblast figure. They can also be stained to any color desired.

Manufacturers of office filing equipment use Redwood for file transfer cases because of its light weight and ability to hold a tight glued joint.

WILL NOT SHRINK, SWELL OR WARP

Storage Battery Purposes

If Nature had determined to grow a wood especially suitable for storage battery uses, and particularly as separators, she could not have improved upon Redwood.

Redwood meets these requirements satisfactorily. In fact Redwood is so perfectly adaptable for battery purposes that the Electric Storage Battery Company, of Philadelphia, Pa., has taken out letters patent on the use of Redwood in their batteries, and in which patent the following statement is made:

"The quality common to these woods that adapts them to storage battery separators includes the property of not swelling when wet and consequently, when again dried, of not shrinking, warping or twisting to an extent that unfits them for use as separators when dry or dried. Dry separators of this material can be used without the customary allowance for swelling when immersed in the electrolyte of the battery or other soaking solution. This quality also includes the property of these woods which is due to their density and which causes them to act as a diaphragm impervious to battery sediment, yet they are sufficiently porous for absorbing the electrolyte and permitting of the free passage of current; and this quality includes substantial freedom from deleterious organic matter such, for example, as acetic acid, which injuriously attacks the positive pole plates; and this quality further includes sufficient mechanical strength and the property of resisting the destructive action of the electrolyte.

"From the foregoing it is evident that the separators of this invention meet all the requirements of use in a storage battery, and further that they can be dried even though they may have been previously treated with acid or alkaline solutions or both, followed by washing in water, as is customary in order to remove some of their ingredients which would attack lead or be otherwise deleterious.

"The advantage of dry separators over those which have to be kept wet is obvious. The strength of the woods from which I make the separators is so great that even if the separators are treated in the manner above referred to they still retain ample mechanical strength for use in a storage battery. However, these woods contain so little deleterious matter such as would attack lead that they can be used without any treatment at all or with very little treatment.

"For the sake of further explanation it may be said that the quality or characteris-

tic which I have discovered in the certain woods to which reference has been made is that they can be soaked until they are flimsy and then dried again satisfactorily.

"I do not claim in this application a storage battery separator made of woods of the tribe TAXODINEAE, generally of the genus TAXODIUM or of the species TAXODIUM DISTICHUM, since the same forms the subject matter of my application executed of even date herewith and serially numbered 637,532, but

What I claim is:

- "1. A storage battery separator made of wood of the genus SEQUOIA.
- "2. A storage battery separator made of wood of the species SEQUOIA SEMPERVIRENS.
- "3. A storage battery separator made of dry wood of the genus SEQUOIA.
- "4. A storage battery separator made of dry wood of the species SEQUOIA SEMPERVIRENS.
- "5. A storage battery separator made of treated and dry wood of the genus SEQUOIA.
- "6. A storage battery separator made of treated and dried wood of the species SEQUOIA SEMPERVIRENS."

This patent is No. 1,012,751, and was granted December 26, 1911.

Organs

The highest possible evidence of Redwood's "staying-put" quality can be found in the fact that it has been used for years with absolute satisfaction as a material from which pipe organs are made.

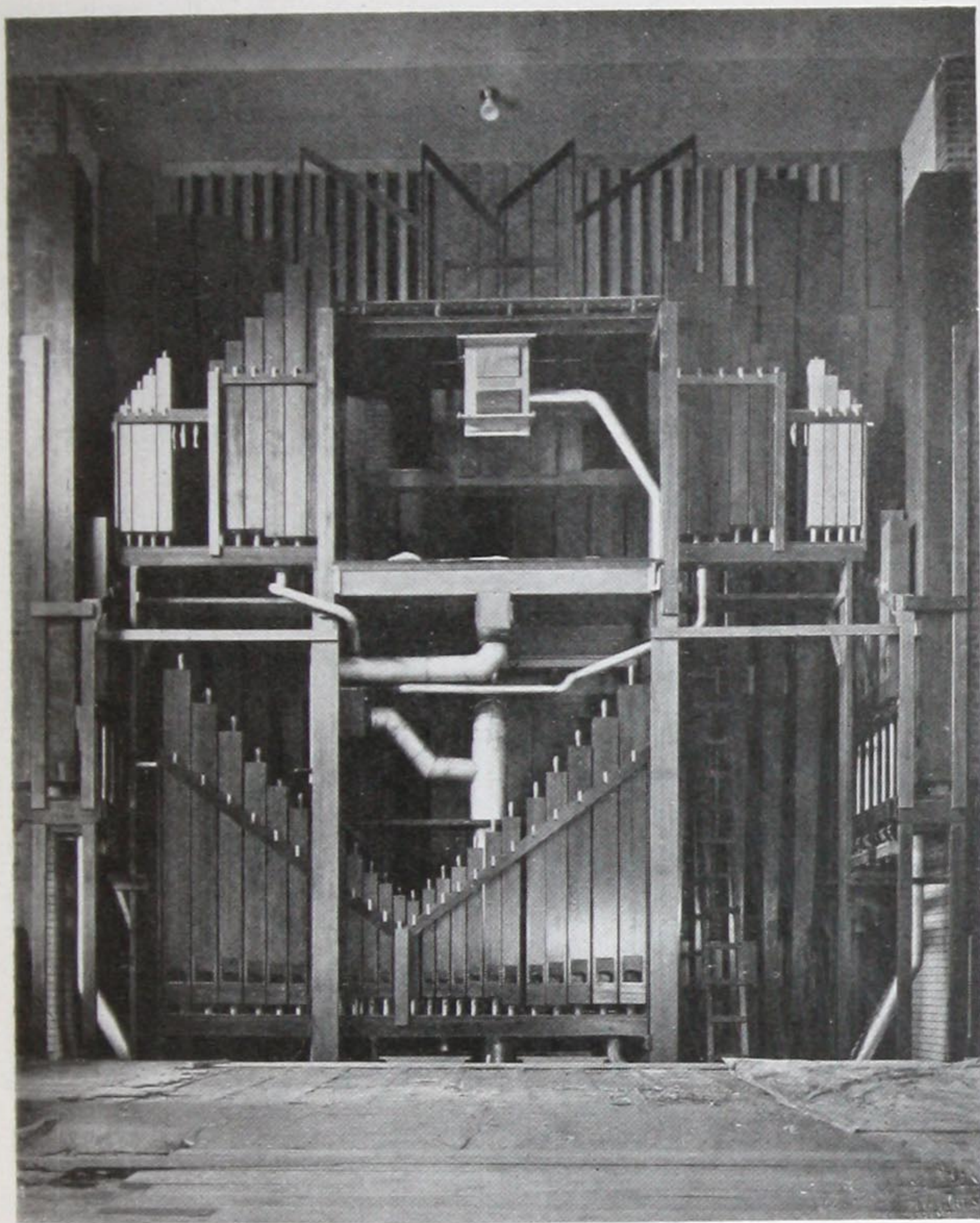
The organ is a delicate instrument, as the slightest leak would be disastrous to the tone.

The organ manufacturer cannot use a wood that varies in the slightest, either through change in temperature or atmospheric conditions, or a wood that contains pitch or gummy substances to deaden the resonance of the wood or leak into valves.

The following letter from the secretary of the California Organ Company of Los Angeles indicates the high confidence that company has in Redwood:

R E S I S T S F I R E A N D R O T

C A L I F O R N I A R E D W O O D



Striking evidence of Redwood's non-shrinking quality. Sound-producing pipes of California Redwood in the magnificent pipe organ in the First Universalist Church, Detroit. The slightest shrink or other movement in the Redwood pipes would destroy the tone of the instrument!

THE CALIFORNIA ORGAN CO.

Los Angeles, Cal., Sept. 12, 1916.

CALIFORNIA REDWOOD ASSN.,

San Francisco, California.

Gentlemen: In regard to Redwood in the manufacture of pipe organs, there are, of course, several reasons for our using the same.

The woods usually used in this type of construction, or those which have been used in the past are white cedar and sugar pine.

A government report shows the relative value of Redwood, white cedar and sugar pine in the order mentioned, concerning the lasting qualities, absence of swelling and shrinkage, and the absence of pitch.

The principal advantage to us is the

absolute assurance that our work is going to stay "put" after completion. For instance, a Redwood pipe does not expand or contract under a great variety of climatic and atmospheric conditions. This is extremely essential as the cubical area of the pipe concludes the pitch, and should a pipe move from its fixed position an instrument would move slightly out of pitch.

In the chests of an instrument we find Redwood to be of exceptional value. There are hundreds of small felt and leather valves, and should the wood exude pitch these tiny parts would stick and refuse to work. It is also an advantage in chest work as it is essential that these chests should be airtight, and the possibility of checking is minimized in the use of properly dried Redwood.

An advantage in favor of Redwood for the manufacture of swell boxes and the

larger pipes is the fact that Redwood is obtainable in any dimensions, extraordinary width being demanded at times.

There are two other important reasons. In the matter of cost, as compared with the woods used by other manufacturers in this line, the initial price as compared to sugar pine is approximately 50 per cent; as compared with white cedar, Redwood is slightly lower in price and is vastly superior to it. It also has the advantage of being light, consequently shipping rates are greatly reduced.

In closing we beg to advise that we have delivered instruments constructed of Redwood from New York City

WILL NOT SHRINK, SWELL OR WARP

across the continent to Honolulu, and have absolutely no difficulty with Redwood parts.

Very truly yours,
(Signed) THE CALIFORNIA ORGAN CO.,
A. E. Streeter, Secretary.

Clock Hands

Light weight, absence of shrink, warp and swell, together with resistance to rot when damp or encased in metal and denied ventilation are bringing Redwood rapidly to the front as the best wood to be used as hands for large clocks in public buildings.

Most of these clock hands are covered with copper or bronze.

A notable example of Redwood clock hands is that on the Custom House, Boston. The minute hand is 16 ft. long, and weighs 141 lbs. The hour hand is 12 ft. long and weighs 112 lbs.

The following letter from the E. Howard Clock Company, Boston, Mass., who built and installed the clock, is an unquestioned testimonial of Redwood's splendid adaptability for this purpose:

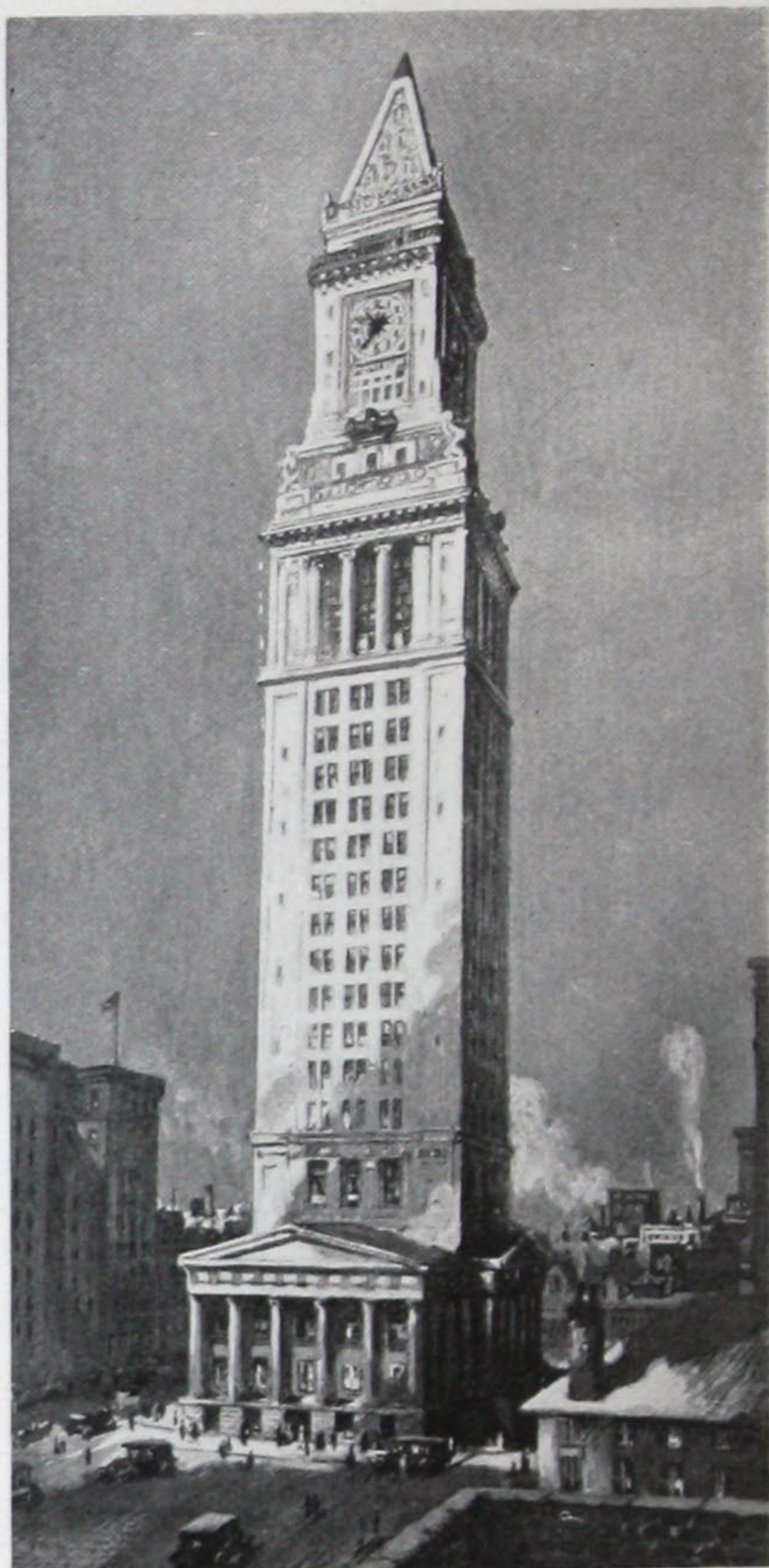
Boston, Mass., June 22, 1916.

CALIFORNIA REDWOOD ASSN.,
51 Newhall Building,
San Francisco, California.

Gentlemen: In reply to your secretary's inquiry of the 7th inst., would say that the reason we selected Redwood for the Boston Custom House Clock hands is because of its extreme lightness, which in this instance was very important.

In addition to being very large hands, the Government specifications required that they should be completely metalized, or, as we call it, armor bronzed.

Because of the four pairs of hands for that clock having proved very satisfactory, we expect to use Redwood in the future. . . . We agree with you



Redwood was used for the clock hands on the Custom House, Boston, because of the well-known resistance to rot and light weight of the wood of the "big trees" of California

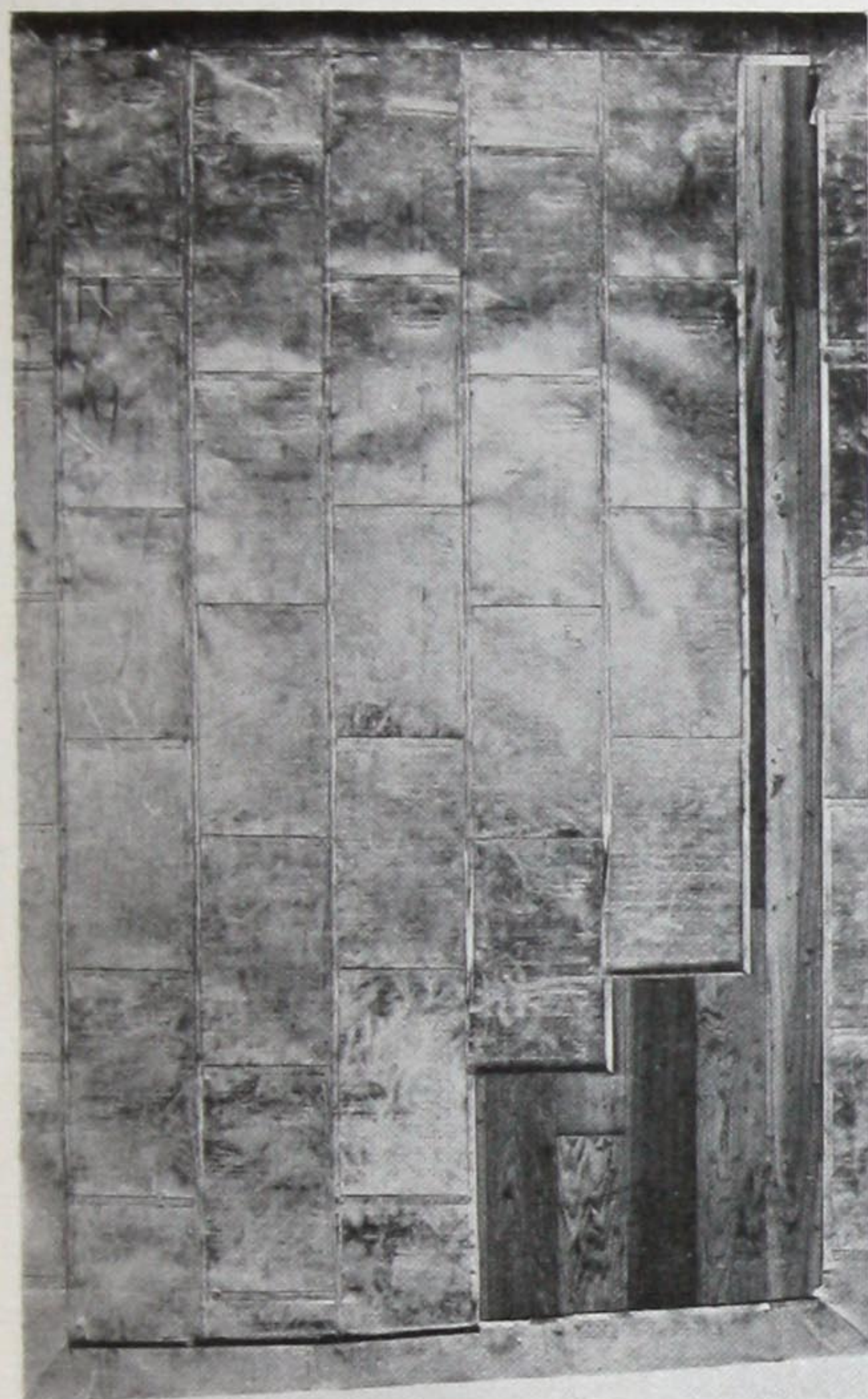
that Redwood is a very desirable material, but of course it is quite expensive and it has to come from a very long distance.

We enclose two reprints from the Architectural Review, relating to that particular clock, which we would be glad to have you put up in the rooms of your Association.

Very respectfully yours,

THE E. HOWARD CLOCK CO.,
By E. A. Bigelow, Treasurer.

R E S I S T S F I R E A N D R O T



Fire-proof door, showing Redwood core used under the metal covering. Approved by the Fire Underwriters Association

Fire-Door Cores

Redwood is one of the four woods specified by the Fire Underwriters Laboratories as a material from which fire-door cores should be built.

Of these four woods Redwood is the first preferred, for these reasons:

1. Natural resistance to fire because of slow ignition and slow burning.
2. Absence of pitch, resin, or other inflammable elements.
3. Does not dry rot when denied ventilation.

4. Will not "wet" rot due to moisture from sweating metal.
5. Light in weight, strong, and easy to work.
6. Always hangs true, and is not affected by swelling or shrinking in the core by reason of moisture or dampness that might penetrate through steaming, sweating, etc.

The following letter from a large Pacific coast manufacturer of fire doors is based on years of practical experience:

CALIFORNIA FIRE-PROOF DOOR COMPANY

1931 SOUTH LOS ANGELES STREET
Los Angeles, Cal., Aug. 16, 1916.

CALIFORNIA REDWOOD ASSN.,
San Francisco, Cal.

Gentlemen: In reply to your letter of August 15th.

There has been much discussion on the relative merits of various soft woods to be used in the construction of fire doors.

In my experience I find that Redwood is the best wood in all cases, it having, you might say, no pitch in it, which makes it almost non-burnable. Also, it does not dry-rot when enclosed by metal and denied ventilation.

Most woods I have noticed that are incased in metal will sooner or later dry-rot, and I have noticed a number of doors after having been enclosed for seven or eight years were reduced to a scrap or junk through dry-rot.

We are the largest manufacturers of fire doors on the coast, and we have never had one complaint about our material going bad. In fact, in the course of a change in one of the Pacific Telephone Buildings in San Francisco, the engineer in charge cut one

WILL NOT SHRINK, SWELL OR WARP

C A L I F O R N I A R E D W O O D

CALIFORNIA COTTON MILLS COMPANY

SAN FRANCISCO OFFICE
310 CALIFORNIA STREET
TELEPHONE, DOUGLAS 2643
OFFICE HOURS 10 TO 11 A.M.

MANUFACTURERS OF
COTTON AND JUTE GOODS
OAKLAND, CALIFORNIA

TELEPHONE
FRUITVALE 2300

RECEIVED
APR 12 1917

April 11th, 1917.

California Redwood Assn.,
San Francisco, Cal.

Gentlemen:

With reference to your communication of the 7th inst., would advise you we have selected redwood in many parts of our new building on account of the resistance this lumber has to decay and deterioration and also on account of its resistance to fire. We particularly selected redwood for our elevator shaft on account of the well-known resistance of this wood to fire. The construction of our shaft is 2x6" redwood timbers placed on top of each other, making a solid wall 6" thick.

We gladly recommend this lumber to anyone desiring slow burning construction.

Yours very truly,

CALIFORNIA COTTON MILLS CO.,

Mgr. *J. K. Miller*

JRM-NER.

A strong letter on Redwood's rot and fire resistance

R E S I S T S F I R E A N D R O T

of the metal doors in two that we manufactured; the door in mention having been in place for about eight years, and he, the engineer, returned a part of it to us and a letter stating that the door was in just as good a condition as the day we manufactured it.

Also, another thing that I noticed on the Redwood doors is that after they had been subjected to a fire they are not burnt up. I could cite a number of incidents, but I remember one in particular in which I went to examine the doors after a fire. I found that the door next to the fire had been charred possibly one-quarter of an inch deep. The fire did not get in any further; in fact, it stopped, and as I said, this is due to the fact that there is no pitch in the wood to help it burn.

After the fire at the Times Mirror Company's plant (the Los Angeles Daily Times explosion), I noticed on the building across the alley there was a shutter protecting a window opening. Considering the great heat from the explosion and fire the shutter had fulfilled its duty much more so than any other protection used on the adjoining window. In fact, some of them had hollow metal windows and frames and they had gone absolutely to pieces, but this Redwood shutter kept the fire out of this particular opening; and without doubt in my mind if they had been used on the adjoining openings they would have saved that building.

In conclusion, you can see where I stand regarding the use of Redwood. We will not use anything else because I deem it that our customers are entitled to the best and it is up to us to see that they get it.

Yours very truly,

CALIFORNIA FIRE-PROOF DOOR CO.

(Signed) Mgr. J. A. Mottashed.

Fire Walls

Redwood's slow ignition, slow burning and the ease with which fire is extinguished have made it the recognized material for fire doors.

Experience on the Pacific Coast has demonstrated that a solid Redwood fire wall will perform its function satisfactorily.

Building ordinance No. 399, of the city of Eureka, California, is typical of the permitted use of Redwood for fire-wall purposes, and reads as follows:

Sec. 2. The exterior walls and all party walls of the buildings included within the district above described, shall be constructed of concrete or brick, natural or artificial stone, or iron or a combination of any or all of the above described materials, or of **Redwood** as provided by this ordinance.

Sec. 3. The height of all wooden buildings hereafter constructed within the fire limits shall be limited to 50 feet, from the sidewalk grade to top of fire wall or peak of roof.

Sec. 4. All wooden buildings hereafter erected within the fire limits of the city of Eureka, except those built for, and used exclusively as dwelling houses, outhouses, and private stables, shall be constructed with solid walls, the same to be not less than four inches thick in all one and two story buildings, and in all three or more story buildings, the two upper stories shall be constructed with solid walls of like thickness, and the lower story or stories shall be constructed with solid walls not less than six inches thick. The above thickness of walls to be exclusive of plaster, weather boarding or rustic.

All frame buildings with studded walls or where the walls are not solid, shall have their outer walls covered with rustic or weather boarding, and the walls of such frame buildings shall not come in contact with, or be within twelve inches of, the walls of any other building. Such intervening space shall not be enclosed higher than six feet from the ground.

WILL NOT SHRINK, SWELL OR WARP

Electrical Specialty Work

The absence of pitch or gummy substances, its straight even grain, its non-conductivity, and its resistance to fire are the features that make Redwood preferable for electrical mouldings and specialty work.

Screens

As Redwood is light, easy to work and makes a satisfactory and permanent joint it is in demand for the manufacture of screens.

This applies to the fly screen as well as special work such as screens for moving pictures, portable screens for the home, etc.

The absence of pitch or raised grain and the natural surface of the wood lend it admirably to decorative purposes, either by carving, painting, staining, gluing or fastening mouldings.

Redwood screens do not shrink or warp out of joint, and they have a high resistance to rot, whether exposed to the weather or to conditions that would promote dry rot.

Fireless Cookers

The non-conductivity of Redwood, together with its ability to make a tight joint, and hold the joint regardless of the difference in temperature between the interior and the exterior of the fireless cooker box, are qualities that give Redwood a decided preference for this use.

Its light weight, easy working, perfect surface to paint, and its durability are also favorable factors.

Manufacturers of fireless cookers can buy Redwood to advantage because it can be furnished cut to the sizes required at a material saving compared with buying regular stave lengths.

Stakes and Fence Posts

Because of its wonderful durability in contact with the ground there is no wood like Redwood for stakes and fence posts. It is used almost exclusively in the vineyards and ranches of California.

Enormous quantities of Redwood stakes are set annually in the vineyards and hop fields of California. These stakes are split and come in two sizes, 2 x 2 in. and 6 ft. and 2 x 2 in.—8 ft.

Redwood split posts come standard 4 inches by 5 inches and 7 feet long. Sawn posts come in lengths of 6 feet, 7 feet and 8 feet, and 3 inches by 4 inches, 4 inches by 4 inches and 4 inches by 6 inches.

The wonderful durability of Redwood in contact with the ground was recognized by the Lincoln Highway Commissioners of the west when they selected Redwood for marking posts for that part of the roadway between Salt Lake City and San Francisco, a distance of 1000 miles. Each mile of this distance is to be marked with a Redwood post.

The Highway Commission had before it a proposition to mark this highway with boiler tubes set in a concrete base, but it was found that, in addition to the expensive setting-up cost the boiler tubes could not be guaranteed to stand as long as the Redwood post, which, without any attention, is good for 25 years and upward.

The overland traveler in an automobile is therefore welcomed to California by a thousand miles of Redwood posts that guide him to the land of "big trees," golden rivers, and the most wonderful lumber in the world—Redwood.

Bee Hives

Redwood is without question the best adapted wood for bee hives.

Its light weight, easy working and its ability to hold tight joints regardless of alternating conditions in the atmosphere, as well as its durability without protection of preservatives, make it a material which, when used in the bee hive, can be depended upon to last a life-time.

Redwood is odorless and tasteless and has no deleterious effect on the honey.

Bee hive stock in Redwood is obtainable in cut lengths according to specifications desired.

Fruit Trays

In the great fruit-growing sections of California the Redwood tray is used for sun-drying fruits.

These trays are made of Redwood. They are set on the ground with the fruit in them, and are thus exposed, during the curing process, to the hot rays of the sun.

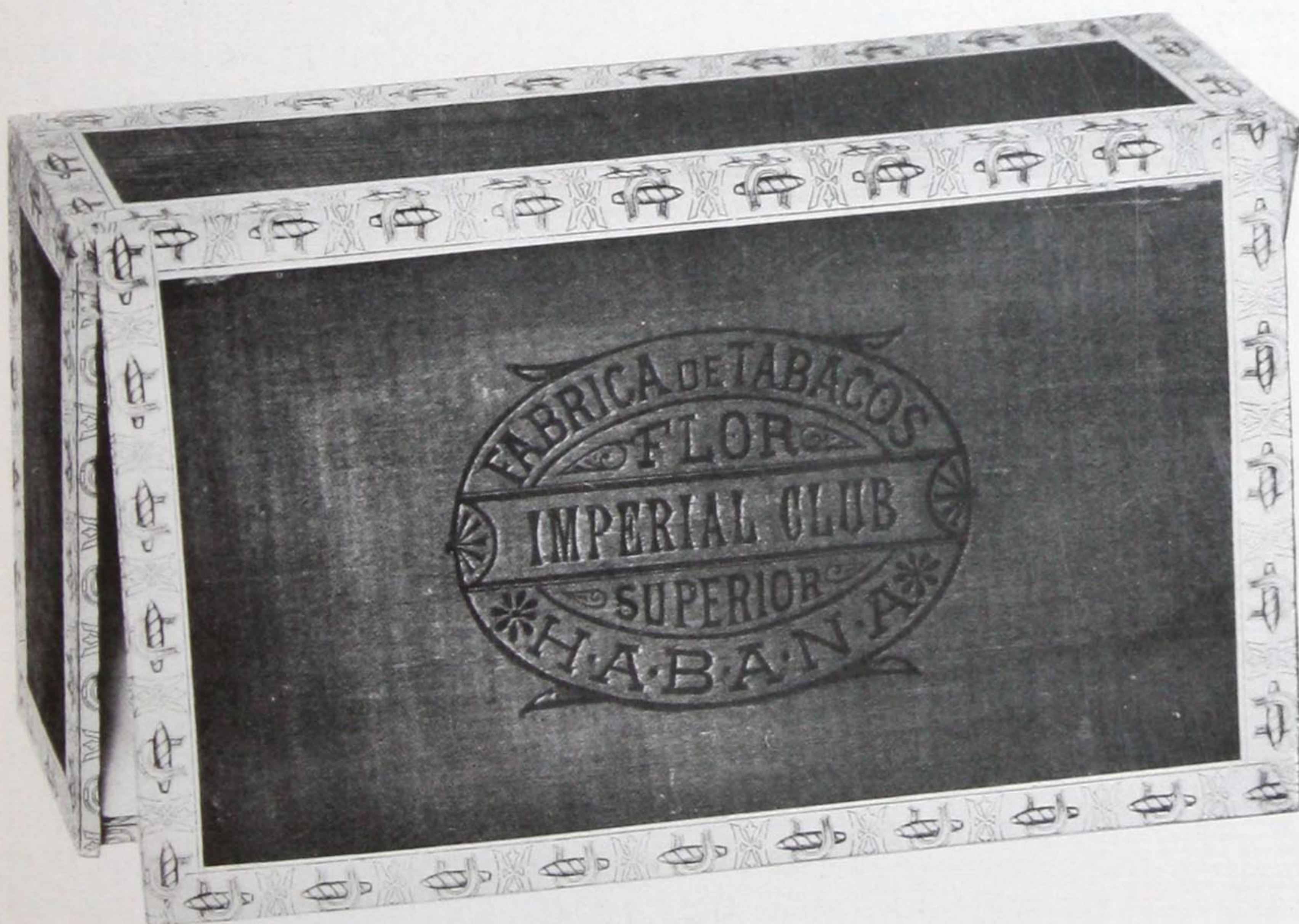
Setting on the moist ground they are naturally subjected to curling or warping on account of the conflicting strain set up in the fiber of the wood by the varying degrees of dryness on both sides—and Redwood stands this strain without sacrifice of shape.

In addition, Redwood is light and easy to handle.

Cigar Boxes

Redwood is rapidly finding favor among manufacturers of cigar boxes as a suitable wood for this purpose.

In strength and color it compares favorably with cedar, and is odorless.



A Redwood cigar box

WILL NOT SHRINK, SWELL OR WARP

Redwood possesses the remarkable quality of "staying put" when properly dried, regardless of atmospheric or climatic changes or conditions, and holds labels perfectly.

Cigar box stock should be vertical grain, thoroughly dry and clear. It is furnished either in flitches, or cut to special size for immediate use.

Bill-Board Moulding

Redwood is recognized by the bill posters of the United States as superior for bill-board moulding.

Bill-boards are exposed to rough weather, and the essentials, therefore, are a lumber of great durability under varying climatic conditions, as well as a surface that takes and holds paint perfectly.

Redwood meets all these requirements.

Redwood is the most durable lumber for bill-board purposes. It is light in weight and easy to work. It does not rot because of dampness between the moulding and the bill-board.

For posts and backing Redwood will last longer than the sign-board itself.

Redwood bill-boards require less up-keep attention and cost.

Lead Pencils

The rapidly diminishing supply of cedar for lead pencil stock is causing the pencil manufacturers to look for other suitable woods, and they find Redwood adaptable.

It not only closely resembles cedar in color, but a vertical grain Redwood pencil can be sharpened as readily as a cedar pencil.

Redwood pencil stock, to be entirely satisfactory, must be carefully selected as to grain, softness and the number of annular rings.

It is light in weight, can be thoroughly dried, and is a splendid wood to glue.

Pencil manufacturers in this country have been using Redwood for many years, and large quantities are shipped abroad for this purpose.

Redwood Burl

Burl is not lumber—it is a lump growth on the exterior of the tree, usually covering a wound.

Large quantities of burl are used for novelties, such as pipe trays, plates, bowls, etc., and these in many instances have left the impression, particularly in the east, that burl is Redwood.

Burl is gnarly, plentifully spotted with small knots, hard, and takes a high polish in imitation of mahogany.

Burl does not grow on all trees, and, as a result, it is very scarce. This scarcity, together with the big demand from novelty manufacturers, keeps it at a big premium in the market.

Camera Stock

The light weight of Redwood, its ability to make and hold a tight joint, and the absence of shrink, swell, or warp, regardless of atmospheric or climatic conditions, combined with its easy working quality, make it especially adaptable for camera stock.

Redwood also lends itself splendidly to firm gluing of camera covering.

Redwood camera boxes can always be depended upon to remain light-proof, and thus insure perfect service by the camera.

Toys

The manufacturers of toys are turning to Redwood because it not only affords a sentimental factor that is a powerful influence in its sale, by reason of the fact that it is wood from the "big trees" of California, but also because it is splendidly adapted to such purpose.

It has light weight, smooth even grain, will not swell or curl, is easy and profitable to work and has a bright, warm color.

Redwood toys are not only a diversion, but an education to the child by reason of the fact that they awaken an interest in the "big trees"—a subject that is familiar to every school child in the nation.

Park Equipment

For benches, gutters, and curbing, plant stakes, planking, etc., because of its natural durability in contact with the ground, Redwood is the wood to use.

It is universally used in the parks in the western section of the country, where Redwood is so well known.

Enormous quantities of Redwood were used for this purpose in both the Panama-Pacific International Exposition in San Francisco in 1915, and the Panama-California Exposition in San Diego in 1915-1916.

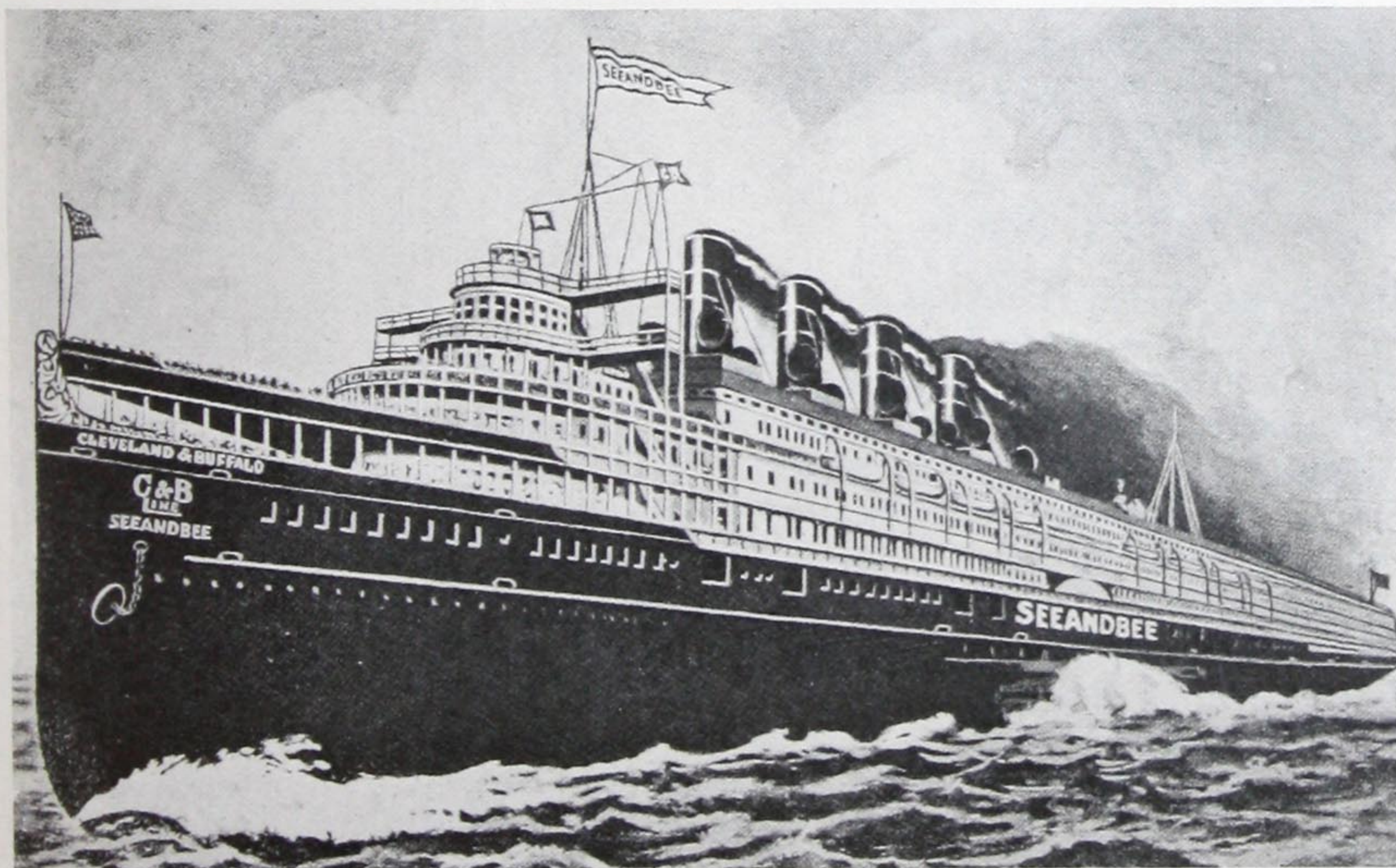
Redwood's adaptability to paint makes it particularly preferable for park benches and settees, pergolas, porches, etc., where the building material must not only have durability but a natural resistance to the weather.

Because it does not warp and swell Redwood is preferred for grandstand benches and bleacher seats at baseball parks and athletic grounds.

Redwood park equipment insures long life at a minimum cost.

Ship Interiors

Redwood has been used for many years as interior finish and cabin par-



S. S. "Seeandbee" of the Cleveland and Buffalo Transit Company, the largest side-wheel ship in the world. The staterooms, partitions, etc., and the canvas-covered decks are of California Redwood

WILL NOT SHRINK, SWELL OR WARP

titions on passenger ships, both in this country and in England, where millions of feet of Redwood "bulk-heading" have been installed on fast Atlantic liners.

It is superior for ship interiors for these reasons—

1. Its resistance to fire, and ease in extinguishing when afire.
2. Lack of shrink, warp, or swell due to changes in temperature or climate.
3. Redwood always looks well—it "stays put."
4. Resistance to wet or dry rot.
5. Its extremely light weight makes it preferred for superstructure in boat-building, where the center of gravity is an important factor.
6. It is a perfect surface to take and hold paint, stain, or enamel.
7. It has splendid adaptability for decorative effect, because of its smooth surface and straight grain. Wonderful panel effects can be achieved in cabins by the use of stain or sandblast.

Pattern Stock

Manufacturing institutions on the Pacific coast have used Redwood for pattern stock for many years.

Thoroughly dry Redwood can be depended upon to make a satisfactory joint; it is easy and profitable to work, and is not affected by variation in atmospheric conditions from moisture to dryness. It can be depended upon to hold its shape.

The pattern makers in the east are turning to Redwood because of this last characteristic, and because it is thoroughly satisfactory to work.

Pattern lumber should be selected

for soft even grain, and it must be thoroughly dry before using. In addition to the clear grade many pattern makers use a selected high grade of "shop" lumber which costs considerably less, and in no way affects the value of the finished pattern.

Veneer Core

The porosity of Redwood makes it absolutely dependable as veneer core.

The holding quality of a core depends upon its absorbing power or anchorage for glue. Kiln-dried Redwood is a perfect gluing surface.

In addition to Redwood's light weight it does not deteriorate by dry rot, even when denied ventilation. It is virtually immune from the attack of insects.

Thoroughly seasoned Redwood does not shrink, swell or warp, and the core will always hold its proper shape. A Redwood core is not affected by sudden changes in temperature or climatic conditions, and, therefore, holds the veneer from moving from the same causes.

Manufacturers using veneer in large quantities have thoroughly investigated Redwood as a core, and find it meets all requirements, and particularly for such fine work as pianos, desks, furniture, hardwood veneer doors, panels, and so forth.

Veneer core stock is furnished in Redwood in small pieces cut to size, rough or built up stock.

A manufacturer of canoes in the east is using Redwood cores between birch veneer for canoes. After considerable experimenting he finds that Redwood is perfectly adaptable to this use for the reason that the porosity of the wood affords a perfect surface to glue, and also contributes to lightness.

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